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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/682,010	07/09/2001	Leonid Modestovich Kustov	8CL-7174A	1039

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CANTOR COLBURN, LLP  
55 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002

EXAMINER
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JOHNSON, CHRISTINA ANN

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 09/22/2005

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/682,010  
Filing Date: July 09, 2001  
Appellant(s): KUSTOV ET AL.

\_\_\_\_\_  
Patricia S. DeSimone  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed April 15, 2005 appealing from the Office  
action mailed November 19, 2004.

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**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

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**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-5 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monque et al.

Monque et al. (US 5,576,256) discloses a catalyst composition useful in hydrocarbon conversion processes. The catalyst composition comprises a high silica MFI zeolite, such as ZSM-5, in combination with a binder (column 2, lines 60-68 and column 3, lines 30-50). The examples detail the use of ZSM-5 in hydrogen form. The reference teaches that the formed catalyst is preferably calcined in two stages; in the first stage is carried out between about 120 degrees C to about 350 degrees C for about 1-6 hours, and the second stage is carried out between about 350 degrees C to about 700 degrees C for about 1-6 hours, which meet the ranges instantly claimed (column 5, lines 10-17). The reference teaches that the catalyst is employed at a temperature of

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250-450 degrees C (column 5, lines 30-45), which is considered to meet cooling step (c).

The difference between the reference and the claims is that the reference does not disclose specifically that the second temperature is at least 100 degrees C greater than said first temperature. However, the reference discloses a range of temperatures for the second step which would result in a 100 degree C temperature differential. Thus the ranges disclose by the reference overlap the ranges instantly claimed. With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. *In re Boesch*, 205 USPQ 215. Additionally, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ.

**(10) Response to Argument**

I. Appellant argues that claims 1-2 and 14-16 are non-obvious over Monque et al.

With respect to claims 1-2 and 14-16, appellant argues that the two step calcination process taught by Monque et al. differs from the instantly claimed process in that (1) the initial stage of Monque et al. is carried out at a temperature range that is lower than the instantly claimed range; (2) Monque et al. does not teach or suggest the requirement that the second stage calcination temperature is at least 100 degrees C greater than the first stage temperature; and (3) Monque et al. does not teach or suggest that the two step calcination process is carried out in the presence of a flowing gas.

With respect to (1), the instant claims require a temperature of 350 to 450 degrees C. Monque et al. teaches a first stage calcination temperature of 120 degrees C to 350 degrees C. Refer to column 5, lines 15-16. Therefore, it is the position of the examiner that the reference meets the claimed range, at least for the endpoint "350 degrees C." It has been held that in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

Appellant can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. "The law is replete with cases in

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which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). A *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997). Appellant has not rebutted the *prima facie* case of obviousness set forth by the examiner. There has been no showing that the claimed range of 350-450 degrees C is critical relative to the range of 120-350 degrees C taught by the reference. Further, the fact that the reference teaches lower temperatures may be suitable does not constitute a teaching away from the use of 350 degrees C as a calcination temperature. Again, the endpoint of 350 degrees C is a specific example which would meet the claimed range.

With respect to (2), while Monque et al. does not specifically teach a temperature differential between the first and second calcination stages of at least 100 degrees C, the temperature ranges taught by the reference would result in a temperature differential of 0-350 degrees C (refer to column 5, lines 15-16), which overlaps and encompasses the claimed range of at least 100 degrees C. Again, it has been held that in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

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Appellant can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). A *prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997). Appellant has not rebutted the *prima facie* case of obviousness set forth by the examiner. There has been no showing that the claimed range of "at least 100 degrees" (with respect to the temperature differential) is critical, i.e. there has been no showing that a temperature difference of 100 degrees C is vastly different than a temperature difference of 50 degrees C.

Appellant further argues that Monque et al. does not recognize that the relationship between the calcination conditions and the conversion/selectivity/yield of the catalyst produced. However, Appellant has not presented any evidence tending to show that the claimed ranges are critical and result in differing conversion/selectivity/yield. Appellant argues that there is no motivation or teaching to select the claimed ranges. However, the examiner would submit that the reference fairly teaches a two stage calcination process, wherein the second stage is conducted at a temperature 0-350 degrees C higher than the first stage, which would motivate one of



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ordinary skill to choose the claimed range, in the absence of a showing of any criticality of the claimed range.

With respect to (3), Monque et al. specifically teaches that the calcination is conducted "under a flow of air." Refer to column 5, lines 10-11. Therefore, it is the position of the examiner that Monque et al. explicitly meets the claimed limitation.

II. Appellant argues that claims 3-5 are non-obvious over Monque et al.

Appellant argues that Monque et al. does not teach a high silica zeolite as required by the instant claims and cites the teaching at column 3, lines 63-64 and Table 1 as evidence to support this argument. However, the examiner notes that the portion of the reference relied upon by appellant refers to the formulated catalyst and not the zeolite itself. Note that Monque et al. is describing the "final catalyst" in line 63 and this description follows that discussion of a binder material and other active metals being added to the catalyst. In fact, Monque et al. specifically teaches that zeolites such as ZSM-5 having an Si/Al ratio of 10-200 is suitable. Refer to column 3, lines 35-48. Therefore, it is the position of the examiner that Monque et al. explicitly meets the claimed limitation.

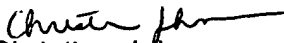
**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.


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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

  
Christina Johnson  
Primary Examiner  
Art Unit 1725  
9/9/05

Conferees:

  
Tom Dunn, SPE, Art Unit 1725

  
Michael Colaiaanni, SPE, Art Unit 1732